

THREE DIMENSIONAL DYNAMICALLY SHIELDED HIGH-Q BEOL METALLIZATION

Abstract

14FIS920030076US1 Three dimensional dynamically shielded high quality factor (Q) BEOL metal elements, such as inductor elements, are disclosed. Three dimensional shielding structures for the BEOL elements reduce or eliminate parasitic substrate capacitive coupling between the BEOL element and the conductive substrate, and parasitic shunt capacitance coupling between different adjacent shunt sections of the BEOL element. The reduction or elimination of the parasitic capacitive components provides high Q BEOL metal elements such as inductor elements. The three dimensional shield structure includes a lower shield surface having a width greater than the width of the BEOL element, and opposed side shield surfaces which extend upwardly from opposite side edges of the lower shield surface, such that the three dimensional shield element forms a U shaped shield around the BEOL element. The three dimensional shield element is dynamically driven to the same electrical potential as the BEOL element, to substantially eliminate the metal element's parasitic capacitances.